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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,046	06/22/2006	Haruhiko Koto	2006_0420A	4979
513 7590 11/23/2007 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER DUBNOW, JOSHUA M	
			ART UNIT 2861	PAPER NUMBER
			MAIL DATE 11/23/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/573,046	Applicant(s) KOTO ET AL.	
	Examiner Joshua M. Dubnow	Art Unit 2861	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 and 17-32 is/are pending in the application.
- 4a) Of the above claim(s) 12-15, 21, 22 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 17, 19, 20, 23-28 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/22/2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 12-15, 21-22, and 29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 13, 2007.

### *Claim Objections*

2. Claim 1 is objected to because of the following informalities: The limitation "the main scanning direction" lacks proper antecedent basis. Appropriate correction is required.
3. Claims 17 and 19 are objected to because of the following informalities: Claims 17 and 19 depend from claim 20, a later claim. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 and 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Booth et al. (U.S. Publication # 2003/0234851)**.

Considering **claim 1**, Booth et al. discloses an inkjet printer comprising a rotary drum (92) with an outer periphery of a sufficient length to mount a printing medium (94). Regarding the "driving means for rotating" language of claim 1, this language will be interpreted as invoking 35 U.S.C. 112 sixth paragraph. A drum driving means rotates the drum (paragraph 0086), and a recording head is provided close to the rotary drum with a plurality of recording elements (95). Nozzle orifices are arranged in the main scanning direction at a predetermined pixel density in the print area (paragraphs 0062-0063). The outer length of the drum is an integer multiple of a base length of a print medium and holds the integer multiple sheets (Figures 5A, 5B). The drum is rotated to move the medium relative to the recording head at a speed above a standard speed (paragraphs 0071, 0072).

Booth et al. does not specifically disclose that the recording is carried out by N-pass printing with N rotations where N is equal to the number of sheets on the drum.

However, the number of passes is a functional recitation of desired use and not a structural limitation. The printer of Booth et al. is capable of being used in that manner.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the printer of Booth et al. so that the number of passes of printing is equal to the number of sheets on the printing drum. This would allow the printer to operate at a high speed while still allowing the ink time to dry after each printing pass (paragraphs 0071, 0072).

Considering **claim 2**, and as applied to claim 1 above, as stated above, the number of printing passes is a functional recitation of desired use and not a structural

limitation, and the printer of Booth et al. is capable of being used in that manner.

Therefore, because the maximum speed of the drum rotation does not depend on the number of sheets, the speed of printing N sheets will be N times a standard speed of the printing medium (paragraphs 0062-0069).

Considering **claim 3**, and as applied to claim 1 above, Booth et al. discloses a movable head (74) for moving relative to the drum (Figure 3B) in the main scanning direction. The head is capable of moving to N positions including a base position, and the recording elements are operated in each position to form images (paragraph 0056).

Considering **claim 4** and **claim 5**, and as applied to claim 1 above, Booth et al. discloses that paper is supplied to the drum at a certain position (paragraph 0045). As discussed above, timing of sheet supplying is a functional recitation of desired use and not a structural limitation. The printer of Booth et al. is capable of supplying a paper every predetermined revolution of the drum in order to continuously operate the printer and print images on the media efficiently. A paper mounting/holding means is disclosed for holding N sheets on the drum (paragraph 0049). Although not explicitly mentioned, it is inherent that there is a delivering means for delivering the printing medium at a predetermined position because it is disclosed that a cycle of printing is complete with sheets supplied, printed, and then new sheets supplied. In order for a new printing process to begin, the completed sheets must be delivered (paragraphs 0071-0072).

Considering **claim 6**, and as applied to claim 4 above, Booth et al. discloses that a plurality of printing media are supplied, mounted and held, and delivered while the recording elements perform printing. Because the drum is rotated in a constant manner

in a single direction, the order of the printed images and the images on the sheets must be the same (Figure 5A, paragraphs 0071-0072).

Considering **claim 7**, and as applied to claim 4 above, Booth et al. discloses that the same recording elements and nozzles are used to form images to on the N sheets of printing medium (Figure 5A). Because the nozzles are located on one printhead (95), they all must be used for each print sheet.

Considering **claim 8**, and as applied to claim 3 above, Booth et al. discloses a recording head that is capable of moving between positions spaced at uniform distances. The head moving means is coupled with the recording head so it can be moved to print and form the print images (paragraph 0056).

Considering **claim 9**, and as applied to claim 1 above, Booth et al. discloses that the recording head has a plurality of recording elements, and elements of even or odd numbers can be operated for recording for each position (paragraph 0063).

Considering **claim 10**, and as applied to claim 4 above, as discussed above, the number of printing passes and the frequency of supply and delivery are functional recitations of desired use and not structural limitations. The printer of Booth et al. is capable of being used such that the supply means and delivery means supplies and delivers the paper once per  $1+1/N$  rotations of the drum.

Considering **claim 11**, and as applied to claim 1 above, Booth et al. discloses a printing medium of a length which is N times the length of the maximum size paper (Figures 3B and 4A). When printing an image on this sheet, the size of the image is equal to N times the image formed on the maximum size paper.

Regarding **claim 23**, which is similar to claim 3, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 3.

Regarding **claim 24**, which is similar to claim 4, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 4.

Regarding **claim 25**, which is similar to claim 6, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 6.

Regarding **claim 26**, which is similar to claim 7, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 7.

Regarding **claim 27**, which is similar to claim 5, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 5.

Regarding **claim 28**, which is similar to claim 11, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 11.

Regarding **claim 30**, which is similar to claim 6, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 6.

Regarding **claim 31**, which is similar to claim 7, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 7.

Regarding **claim 32**, which is similar to claim 24, please note the rejection and the reasons for modify Booth et al. as set forth above with respect to claim 24.

6. Claims 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Booth et al. (U.S. Publication # 2003/0234851)** in view of **Nuita et al. (U.S. Patent # 6,070,977)**.

Considering **claim 20**, and as applied to claim 1 above, Booth et al. discloses an inkjet printer comprising all of the claimed limitations discussed above.

Booth et al. fails to disclose a tray between the drum and the recording head.

However, Nuita et al. teaches an inkjet printer with a tray (240) between the drum (10) and recording head (200). The tray is parallel with the shaft of the drum and is inserted between the drum and the print head for cleaning, and there is also a translating means for pulling out the tray (column 15 lines 29-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the printer of Booth et al. with the teaching of Nuita et al. in order to clean the inkjet nozzles for higher quality printing (column 15 lines 29-41).

Considering **claim 17**, and as applied to claim 20 above, Nuita et al. teaches a means for moving the print head away from the drum to extend the distance between it and the drum (column 15 lines 15-41). Although Nuita et al. teaches moving the print head horizontally, this is a result of it being on a side of the drum. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify apparatus of Nuita so that the print head was above the drum. Moving the printhead would then use a means for elevating vertically. This would allow the ink to be ejected further upstream and shorten the path the print medium must travel.

Considering **claim 19**, and as applied to claim 20 above, Nuita et al. teaches a suction port at the drum side of the tray (231) connected to a suction pump (233) to suck ink from the nozzles (column 15 lines 42-49).



***Allowable Subject Matter***

7. Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Teumer et al. (U.S. Patent # 5,980,136), Sugiyama et al. (U.S. Patent # 5,517,222), Kawasumi (U.S. Publication # 2002/0039507), Peterson (U.S. Patent # 4,352,671).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua M. Dubnow whose telephone number is 571-270-1337. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**MATTHEW LUU**  
**SUPERVISORY PATENT EXAMINER**



**Joshua M Dubnow**  
**Examiner**  
**Art Unit 2861**

November 19, 2007